

Worm Composting Lesson Adapted by Charlene Clarke
Created by Kansas State University

Overview

The goal of this unit is to cultivate enthusiasm about composting in my second grade class. Students should walk away understanding that composting is how nature recycles. Students will also learn that by composting, they are taking care for their communities and the natural environment that humans and animals depend on to live. The use of games, observations, data collection, art projects will help warm students up to the idea of composting, and teach basic principles of biodegradability and soil science.

Essential Questions

How do worms change garbage into compost?
How can composting with worms help our environment?
What are some things that can be used for composting?

Vocabulary:

biodegradable- can be broken down into small pieces (decompose)

vermicompost- worms that break down food that we waste and create

castings- the waste (poop) of a worm

decompose- to separate into parts (You can remind student of how we decompose numbers)

ecosystem- a habitat where everything works together to survive

decomposers- small animals that eat organic materials in the composting bin as food.

Organic something created in nature that use to be alive **or** is made from something that was living at one time.

Circular Areas and Standards

Science Standard 14. Understands how human actions modify the physical environment.

Language Arts Standard 8. Use listening and speaking strategies for different purposes.

Language Arts Standard 6. Uses reading skills and strategies to understand and interpret

Domain:3c Engage students in learning

Art:

MATERIALS

recycled panty hose, felt, glue, yarn or string. large soft ball, A worm bin, ° Red Wiggler Worms, magnifying glasses , a copy of the story “ Kyle and the Compost Pile” and accompanying worksheet. classroom scrap bin. plastic knives and cutting boards.

This unit could take from 5- 6 days depending on the group. Take your time if you need to and have fun.

Warm Up: Teacher brings in a worm bin. It is concealed in a brown paper shopping bag. She tells the class that today she has brought in pets from home. She asks the children to make predictions. These predictions are written on posts-its and placed on the board. Students stand around the board and discuss which responses are realistic based upon the size of the bag. Students then begin to weed out unrealistic predictions. The teacher begins to share hints about the pets like: **My pets live in this box (revealing the box) , They are smaller than my finger. My pets eat garbage. My pets have no legs. My Pets have 5 hearts? My pets have jobs. My pets are very picky eaters. My pet has no teeth?** Students look at their predictions to see if any are possible and can now make verbal predictions. Teacher reveals the worms. Children slide the compost box on the floor while sitting in a circle while looking at the worms briefly with a magnifying glass.

Activating Prior Knowledge (Turn, Talk, Share)

Where have you seen worms in the past?

What do you know about worms? Students share what their buddies told them with the rest of the group.

Teacher says, “ This week we are going to learn about how my pets, Red Wiggly Worms, are helpful to the earth, people that live here.”

Video

Peppa Pig Composts (Simplified concepts)

<https://www.youtube.com/watch?v=8PEIbErayZg>

(More complex using rich vocabulary)

Vermicomposting: How worms can reduce our waste - Matthew Ross

https://www.youtube.com/watch?v=V8miLevRI_o

Teacher and students create a diagram of the composting process that Peppa and her family went through using chart paper and markers.

Teacher says: "Peppas' dad was making vegetable soup. What are some veggies he might have used?" When Peppa was about to throw away the scraps of food, what did her mom tell her to do instead? What is in the box that Grandpa has them put the scraps in? What happens to the food? (Here is where you can introduce the vocabulary word castings.) Where do they take the castings? Why do you think they do that? What do you think will happen next? How did saving the scraps help this family?

(This should be drawn in a circle so children will see the cycle.) (3 mins)

1 draw and label veggies for soup -> 2 draw and label food scraps -> 3 draw and label worms in the compost box . 4 draw the castings

Dramatic Play re-enacting the video of the entire process (optional)

Procedure:

There will be three tasks

Task#1= Students will create "Wormy Dolls" using: string, recycled, pre cut brown panty hose (about four inches long) felt, glue, fabric or paper scraps

Teacher will present worms in small cups to observe using magnifying glasses.

She will have students discuss

the parts of the worm that they see. Students will create their own worms

Then will then present their worms and discuss what each part represents.

Assessment: Students were able to create and label the worm with at least 3 body parts and explain how it is like the worm that they observed.

Extension- Students research and record data about the body parts of the Red Wiggly Worm

Task # 2= Students in this group will read " Kyle and the Compost Pile" with a buddy which will be paired high/low in skill level.

They will then complete a worksheet presented by teacher containing the following questions
Remind students that all sentences have capitals, periods a subject and predicate.

1-What was one problem that Kyle had?

2-How did he go about solving the problem?

3-What is another way he might have been able to solve this problem?

4-How is Kyle helping our environment?

Students will then write a question of their own on a piece of large chart paper for a classmate to answer. (They can be answered by anyone that finishes the stations quickly and needs something to do.)

Task #3= “ I Can Compost it “ (Do this activity before lunch)

This station will require a small group lesson before they can do the activity.

The teacher will go over the vocabulary words with the group, explaining definitions.

Procedure for mini lesson:

1. Tell students that some of the things we throw away, like aluminum cans and plastic bottles, do not **decompose**. They are called non-biodegradable because the material they were made from does not break down easily. Banana peels, leaves, wood, and paper are all examples of **biodegradable** matter. **Biodegradable matter can be decomposed, or broken down**, and eventually **becomes compost**. **Composting is a way of recycling the organic that we otherwise might throw away.** (Vermicompost is compost with worms.) Castings The poop from the worms that help the soil become rich in nutrients. Large index cards , give students three minutes to list as many biodegradable items as possible that can be composted. (Remind students of Peppa the Pig Video.)

Can be played IN or Outdoors

I Can Compost It Game Procedures

How do you play?

1-To start the game everyone stands (or sits) in a circle. The first part of the game is to give students a taste of the game. It is not tag at first. . Call out a participant's name and something that can be composted: “Sarah, Banana Peel!” Toss the ball to the student named and then sit down. The players continue in this fashion, calling out compostable material and tossing the ball to the named participant, until everyone is sitting.

2-Now the tag part can begin. One participant is placed in the middle of the circle and becomes “it.” The person in the middle must tag the person with the ball before the ball is tossed. The person throwing the ball names something that can be composted and then throws it to someone else before being tagged. If the student with the ball doesn't name something before s/he throws the ball, s/he will be tagged and become “it,” s/he will change places with the one in the middle. The game ends when everyone has a turn. Everyone Wins

Tell the children that they are now ready begin gathering compostable materials at lunch for our bin! Delegate a “composting team” that preps the lunch scraps. Rotate weekly. Have children from previous week train the new team until everyone knows how to prep. Plastic knives and cutting boards are used as well as cardboard trays for collection.

Wrapping it up: Students will write reflections about: 1 How do you think composting will help the environment? 2 Do you think you would like to participate in the composting at home. Why? Why Not?
(It must include at least 3 or more vocabulary words.)

Rubric

Level 4

- Students are expected complete all three tasks
- answers to comprehension questions are correct and written in complete sentences.
- wrote a reflection using the at least 3 vocabulary words learned during the unit and hit all of the bullets

Level 3

- Students completed all three task
- Answers comprehension questions with one or fewer errors. sentences were complete
- wrote a reflection using 2 vocabulary words from unit and includes how they think composting with worms will help to save our environment

Level 2

Students completed 2 tasks

Answers to comprehension questions 2 errors and sentences were incomplete

Wrote reflections using 1 vocabulary word from unit but does not include how they think composting with worms will help to save our environment

Level 1

Students completed one task

Answers to comprehension questions have 3 or more errors , Sentences were incomplete

Wrote reflections using no vocabulary from the unit

or did not write a reflection

Resources

What do worms eat?

http://www.co.carver.mn.us/departments/LWS/docs/Composting_With_Red_Wiggler_Worms2.pdf

All about composting with Red Wiggly Worms

<http://www.kansas4-h.org/doc7949.ashx>

Games and Activities for Extensions

http://www.cvswmd.org/uploads/6/1/2/6/6126179/do_the_rot_thing_cvswmd1.pdf